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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,222

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Atsushi Ohma

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EXAMINER

YANCHUK, STEPHEN J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/12/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,222	Applicant(s) OHMA, ATSUSHI	
	Examiner STEPHEN YANCHUK	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/22/2009, 10/27/2008, 01/17/2007, 06/08/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 defines a first region as being central and a second region on the outside. This is improper since claim 11 already established the first region having a second region interior wherein the first region is on the outside the second region is central.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims are rejected under 35 U.S.C. 102(b) as being anticipated by Knights et al (PGPUB 2003/0077501).

Claim 11: The instant claim is to a separator comprising ribs wherein it is commonly known that separator is also defined as a bi-polar plate or a plate between the electrode-membrane-electrode assembly and the ribs are entities forming a gas or fluid flow channel. Upon inspection of the specification, the claim to temperature variation is due to non-uniformities in the gas flow path and coolant channels, wherein

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Knight teaches such limitations. One specific example is temperature dependency based on sectional area.

Knights teaches an electrochemical fuel cell having reactant flow passages with non-uniform design to increase reactant access to adjacent fluid distribution layer at the outlet region as compared to the inlet region [Abstract]. Knight teaches a fuel cell comprising: A membrane with electrodes on opposite sides [Paragraph 4], the plurality of cells [Description, Figure 3], at least a first region and second region wherein temperatures of the first region are higher due to change of channel structure of the flow field [Figure 4-6]. The gas diffusion is improved by the embodiments of figure 4-6, specifically figure 4 wherein the reactant flow passage widens [Paragraph 32].

Claim 12: Defining various regions of a fuel cell does not positively recite structure limitations since only the definition is changed.

Claim 13: Knights teaches coolant flow channels that mirror the reactant flow passages [Paragraph 14, 34-39]. The definitions of first and second regions have become ambiguous but do not further limit the structure.

Claim 14: This claim does not appear to positively recite structure limitations. To help the applicant, the examiner will attempt to share the interpretation wherein this claim does not effect the structure. With the fuel cell and variable reactant flow channel separator plate as shown above, the first region is on the outside and comprises an interior wherein a "second region" exists and that second region touches a portion of the unit cell; the second region is in the interior and has a first region on the outside wherein

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the 1st region is in contact with the unit cell. Figures 1 shows a unit cell and the description of the prior art shows this definition is taught.

Claim 15-18: Knight teaches a gas distribution passage that widens as it goes from inlet to outlet [Paragraph 32]. This reads on the claims wherein the outer first region of the inlet has an adjacent region, second region that is interior and with a wider sectional area. The second area has an area adjacent to it, first region, that has a sectional area that is smaller. This same rational can be applied for the width of the ribs wherein they will decrease going downstream.

Claim 19-20: Knight teaches using carbon as filler materials which do not completely block the passage of reactants [Paragraph 28, 30]. The relative porosity of the gas diffusion electrode will increase as the reactant moves from inlet to outlet since it is in contact with more surface area of the electrode. This is true because a region of the electrode covered by a rib has an effective porosity of 0 in the stacking direction.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN YANCHUK whose telephone number is (571)270-7343. The examiner can normally be reached on Monday through Thursday 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN YANCHUK/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795